

***Remarks***

Reconsideration of this Application is respectfully requested.

Claims 13-19, 23, 24, and 27-35 are pending in the application, with claims 13, 23 and 33 being the independent claims. Claims 1-12, 20-22, 25, and 26 were previously cancelled. No amendments to the claims are being made at this time.

Based on the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding rejections and that they be withdrawn.

***Telephone Interview Summary***

Applicants' representatives thank the Examiner for his time during a telephone interview at 11:00 A.M. (EST) on July 8, 2008. During the telephone interview, the Examiner stated the 35 U.S.C. § 102 rejection on page 3 of the Office Action was in error and should have been a 35 U.S.C. § 103 rejection. Applicants will respond below accordingly.

Applicants' representative explained the differences between the cited reference and the pending claims. The Examiner recommended that a reply to the Office Action be filed and the arguments presented in the telephone interview be presented in the reply.

***Rejections under 35 U.S.C. § 103***

**Hashimoto**

Per the Examiner's notification of erroneous § 102 rejection on page 3 of the Office Action, and per the Examiner's instructions, Applicants respond as if claims 13-16, 19, and 23-24, and 27-28 (although claims 1-5, 9, and 23-28 were listed by the Examiner, the Examiner is reminded claims 1-12, 20-22, and 25, and 26 were previously

cancelled) were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Great Britain Patent Application No. GB 2,321,316 to Hashimoto (hereinafter "Hashimoto"). Applicants respectfully traverse this rejection.

Claim 13 recites features that distinguish over the cited reference. For example, claim 13 recites:

measuring a first respective temperature of a first plurality of regions in the target portion of the substrate;  
measuring a second respective temperature of a second plurality of regions in the target portion of the substrate;  
calculating a dimensional response from differences between measurements of the first and the second respective temperatures of the first and the second plurality of regions of the substrate

Claim 23 recites similar distinguishing features using respective language.

The Examiner alleges that in Fig. 2, pages 16-19, Hashimoto discloses these features of claims 13 and 23. Applicants respectfully disagree. Hashimoto discloses a procedure for determining thermal deformation of the substrate based on a well-known linear thermal expansivity equation (3), which includes a theoretical distance between alignment marks (pp. 17, lns. 10-20). Hashimoto then uses a pre-existing (e.g., pre-stored or previously determined) temperature value at a first substrate location to calculate a target substrate temperature value at a second substrate location, based on equations (3) and (4) (pp. 18, lns. 16-18). Hashimoto then adjusts the target substrate temperature at the second substrate location, using a temperature regulating mechanism, so that the temperature at the second target substrate location is close to the calculated value (pp. 18, lns. 24-25). It appears that Hashimoto has pre-existing temperature values that it uses to adjust temperature at different portions of the substrate based on a measured first

temperature. Hashimoto does not teach or suggest at least the above-noted distinguishing features of claims 13 and 23.

At most, Hashimoto uses equations (1) and (2) to calculate a deformation in the x and y directions without taking into account any newly performed temperature measurements (pp. 7, lns. 20-25), as recited in claims 13 and 23. This is different from measuring a first and a second temperature of two different regions in the target portion of a substrate and calculating a dimensional response from differences between measurements of the first and second temperatures, as recited in claims 13 and 23.

Therefore, Hashimoto does not teach or suggest these features of claims 13 and 23, and cannot be used to establish a prima facie case of obviousness.

Accordingly, Applicants respectfully request that this rejection be reconsidered and withdrawn, and that claims 13 and 23, and their respective dependent claims, be passed to allowance.

**Hashimoto and Shiraishi**

On page 4 of the Office Action, claims 13-16, 19, 29, and 30 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Hashimoto in view of U.S. Patent No. 5,117,255 to Shiraishi *et al.* (hereinafter "Shiraishi"). Applicants respectfully traverse this rejection.

Hashimoto does not teach or suggest at least the distinguishing features of claim 13, as discussed immediately above.

On page 5 of the Office Action the Examiner states, which Applicants do not acquiesce to, Shiraishi teaches or suggests adjusting spatial characteristics of the patterned beam relative to a substrate support wherein the spatial characteristic compares a cross-sectional shape, a position and a size of the patterned beam. However, Shiraishi

is not being used to teach or suggest at least the above-noted distinguishing features of claim 13, or to overcome these deficiencies of Hashimoto, and neither does Shiraishi overcome those deficiencies. Therefore, Hashimoto and Shiraishi cannot be used to establish a *prima facie* case of obviousness for claim 13. Accordingly, Applicants respectfully request that this rejection be reconsidered and withdrawn, and that claim 13, and its dependent claims, be passed to allowance.

**Hashimoto, Shiraishi, and Feder**

On page 5 of the Office Action, claims 6-8, 17, and 18 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Hashimoto in view of Shiraishi as applied to claim 1 and 13 above, and further in view of U.S. Pub. No. 2004/0012404 of Feder *et al.* (hereinafter "Feder"). Applicants respectfully traverse this rejection.

Again, the Examiner is reminded that claims 6-8 were previously canceled rendering the rejection of these claims moot.

Claims 17 and 18 depend from claim 13 and incorporate all features thereof, in addition to their own distinguishing features. On page 5 of the Office Action the Examiner states, which Applicants do not acquiesce to, Feder teaches or suggests temperature sensor located above the substrate. However, Feder is not being used to teach or suggest at least the above-noted distinguishing features of claim 13, or to overcome the deficiencies of Hashimoto and Shiraishi, and neither does Feder overcome those deficiencies. Therefore, Hashimoto, Shiraishi and Feder cannot be used to establish a *prima facie* case of obviousness for claim 13. Accordingly, claims 17 and 18 should be found allowable for at least the same reasons as claim 13 presented above, and further, in view of their own distinguishing features.

**Suzuki**

On page 6 of the Office Action, claims 15 -16 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over U.S. Patent No. 6,416,913 to Suzuki (hereinafter "Suzuki"). Applicants assume that the Examiner meant to state Hashimoto and Shiraishi, and further in view of Suzuki since claims 15 and 16 depend from claim 13. Applicants respectfully traverse this rejection.

Claims 15 and 16 depend from claim 13, and incorporate all features thereof. On page 6 of the Office Action the Examiner states, which Applicants do not acquiesce to, Suzuki discloses measuring amount of light absorbed, and since the temperature is directed [sic] related to the amount of light absorbed and the thermal deformation of the reticle and substrate are both important to the device manufacturing method and a lithographic apparatus, it would have been obvious to one of ordinary skill in the art to provide the method and apparatus for measuring the and adjusting for dimensional response of the substrate as well as the reticle and to measure the temperature of the substrate or the reticle instead of the amount of light absorbed since it is the heat that deforms the substrate. However, Suzuki is not being used to teach or suggest at least the above-noted distinguishing features of claim 13, or to overcome the deficiencies of Hashimoto and Shiraishi, and neither does Suzuki overcome those deficiencies. Therefore, Hashimoto, Shiraishi and Suzuki cannot be used to establish a prima facie case of obviousness for claim 13. Accordingly, Applicants respectfully request that this rejection be reconsidered, and that claims 15 and 16 be passed to allowance at least for the same reasons as their parent claim 13, and further in view of their own distinguishing features.

***Unexamined Claims 31–35***

Claims 31 and 32 depend from claim 23 and incorporate all features thereof. Accordingly, even though the Examiner hasn't provided any specific rejection of claims 31 and 32, claims 31 and 32 should be found allowable for at least the same reasons as claim 23, presented above, and further in view of their own distinguishing features.

Independent claim 33 recites, using respective language, distinguishing features similar to those in claims 13 and 23. Accordingly, even though the Examiner hasn't provided any specific rejection of claim 33, claim 33 and its dependent claims should be found allowable at least for reasons similar to those presented above for claims 13 and 23.

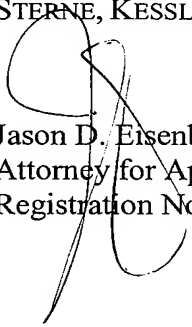
***Conclusion***

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,

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